WHAT IS CLAIMED IS:

1. An optical isolator comprising:

a first birefringent element to which unpolarized light is transmitted and a second birefringent element to which light split into an ordinary ray and an extraordinary ray is transmitted;

a Faraday rotator which is disposed between the first and second birefringent elements and has a rotation angle of 45 degrees when magnetically saturated;

a magnet for magnetically saturating the Faraday rotator;

a lens for converging the ordinary ray and the extraordinary ray outgoing from the second birefringent element; and

a total reflection member for completely reflecting point-symmetrically the ordinary ray and the extraordinary ray by way of conversion of the lens,

wherein the first birefringent element is constituted by a first birefringent plate and a second birefringent plate, crystal axis orientations of the first and second birefringent plates being different by 90 degrees from each other when viewed from the light incident side;

supposing that a horizontal direction is 0 degree, the crystal axis orientations of the first birefringent plate when viewed from the light incident side in a forward direction is set at 45 degrees or 135 degrees;

a rotation direction of the Faraday rotator when viewed from an incident side of light which is transmitted through the Faraday rotator and propagated to the second birefringent element is set to: a clockwise direction when the crystal axis orientation of the first birefringent plate is 45 degrees; and a counterclockwise direction when the crystal axis orientation of the first birefringent plate is 135 degrees;

a crystal axis direction of the second birefringent element when viewed from the light incident side is set different by 45 degrees to the first crystal axis orientation;

the unpolarized light transmitted in the first birefringent plate is split to an ordinary ray and an extraordinary ray, the ordinary ray and the extraordinary ray are transmitted in the Faraday rotator wherein polarization planes thereof are rotated 45 degrees; when the split light is transmitted through the second birefringent element, the light transmitted through the first birefringent plate as the ordinary ray is transmitted therethrough as an extraordinary ray while the light

transmitted through the first birefringent plate as the extraordinary ray is transmitted therethrough as an ordinary ray; and the resulting ordinary ray and extraordinary ray are transmitted in the lens and completely reflected point-symmetrically by the total reflection member at a single point;

the ordinary ray and the extraordinary ray which are completely reflected by the total reflection member are re-transmitted in the second birefringent element and the Faraday rotator in this order; when the ordinary ray and the extraordinary ray are finally transmitted through the second birefringent plate, the light transmitted through the second birefringent element as the ordinary ray after total reflection is transmitted therethrough as an extraordinary ray, while the light transmitted through the second birefringent element as the extraordinary ray after total reflection is transmitted therethrough as an ordinary ray; further the optical isolator has going-returning paths wherein the optical paths of an ordinary ray and an extraordinary ray are matched when the ordinary ray and the extraordinary ray are transmitted through the second birefringent plate;

the optical path length from a center of polarization plane of the ordinary ray transmitted in the lens from the second birefringent element to the single point on the total reflection member and the optical path length from a center of polarization plane of the extraordinary ray launched in the lens from the second birefringent element to the single point on the total reflection member is set equal; and

the second birefringent element has a crystal axis orientation with respect to an element surface normal direction and an element surface normal direction thickness which are necessary for setting an isolated width difference and a polarization mode dispersion between the ordinary ray and the extraordinary ray produced in the first birefringent element at less than 0.5 μm and 0.05 ps, respectively.

2. The optical isolator according to claim 1, wherein an angle of the crystal axis with respect to an element surface normal direction of the first birefringent element is set at 47.8 degrees and an angle of the crystal axis with respect to an element surface normal direction of the second birefringent element is set at 59 degrees.

3. An optical isolator comprising:

a first birefringent element to which unpolarized light is

transmitted and a second birefringent element to which light split into an ordinary ray and an extraordinary ray is transmitted;

a Faraday rotator, which is disposed between the first and second birefringent elements and has a rotation angle of 45 degrees when magnetically saturated;

a magnet for magnetically saturating the Faraday rotator;

a lens for converging the ordinary ray and the extraordinary ray outgoing from the second birefringent element; and

a total reflection member for completely reflecting point-symmetrically the ordinary ray and the extraordinary ray by way of conversion of the lens,

wherein the first birefringent element is constituted by a first birefringent plate and a second birefringent plate, crystal axis orientations of the first and second birefringent plates being different from each other by 180 degrees when viewed from the light incident side;

supposing that a horizontal direction is 0 degree, the crystal axis orientations of the first birefringent plate when viewed from the light incident side in a forward direction is set at 90 degrees;

a rotation direction of the Faraday rotator when viewed from an incident side of light which is transmitted through the Faraday rotator and propagated to the second birefringent element is set to a clockwise direction;

the second birefringent element is constituted by a third birefringent plate and a fourth birefringent plate, crystal axis orientations of the third and fourth birefringent plates being different by 90 degrees from each other when viewed from the light incident side;

supposing that a horizontal direction is 0 degree, the crystal axis orientations of the third birefringent plate when viewed from the light incident side in a forward direction is set at 135 degrees, and a crystal axis direction of the second birefringent element when viewed from the light incident side is set different by 45 degrees to the first crystal axis orientation;

after the unpolarized light transmitted in the first birefringent plate is split to an ordinary ray and an extraordinary ray and the ordinary ray and the extraordinary ray are transmitted in the Faraday rotator wherein polarization planes thereof are rotated 45 degrees, when the split light is transmitted through the third birefringent element,

the light transmitted through the first birefringent plate as the ordinary ray is transmitted therethrough as an extraordinary ray while the light transmitted through the first birefringent plate as the extraordinary ray is transmitted therethrough as an ordinary ray, and the resulting ordinary ray and extraordinary ray are transmitted in the lens and completely reflected point-symmetrically by the total reflection member at a single point;

the ordinary ray and the extraordinary ray, which are completely reflected by the total reflection member, are transmitted in the fourth birefringent plate and then re-transmitted in the Faraday rotator; when the ordinary ray and the extraordinary ray are lastly transmitted through the second birefringent plate, the light transmitted through the fourth birefringent plate as the ordinary ray is transmitted therethrough as an extraordinary ray, while the light transmitted through the fourth birefringent plate as the extraordinary ray is transmitted therethrough as an ordinary ray; further the optical isolator has going-returning paths wherein the optical paths of an ordinary ray and an extraordinary ray are matched when the ordinary ray and the extraordinary ray are transmitted through the second birefringent plate;

the optical path length from a center of polarization plane of the ordinary ray launched in the lens from the third birefringent element to the single point on the total reflection member and the optical path length from a center of polarization plane of the extraordinary ray launched in the lens from the second birefringent element to the single point on the total reflection member is set equal; and

the first birefringent element has a crystal axis orientation with respect to an element surface normal direction and an element surface normal direction thickness which are necessary for setting an isolated width difference and a polarization mode dispersion between the ordinary ray and the extraordinary ray produced in the second birefringent element at less than 0.5 μm and 0.05 ps, respectively.

4. The optical isolator according to claim 3, wherein an angle of the crystal axis with respect to an element surface normal direction of the second birefringent element is set at 47.8 degrees and an angle of the crystal axis with respect to an element surface normal direction of the first birefringent element is set at 59 degrees.

5. The optical isolator according to any one of claims 1 to 4, wherein

the thickness of the first birefringent element in the element surface normal direction is set at a value greater than 105 μm.

6. The optical isolator according to any one of claims 1 to 5, wherein the lens is a GRIN lens and a total reflection film is integrally formed on an end face of the lens as the total reflection member.

7. An optical device comprising: the optical isolator according any one of claims 1 to 6; and a plurality of optical fibers which are optically coupled to the optical isolator.

8. The optical device according to claim 7, wherein a light inlet/outlet end of the optical fiber is formed to be inclined.

9. The optical device according to claims 7 or claim 8, wherein an allowable bending radius of the optical fiber is set at 15 mm or less.

10. The optical device according to any one of claims 7 to 9, wherein the optical fiber is an expanded core optical fiber.